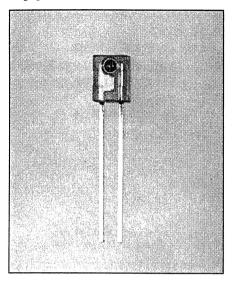
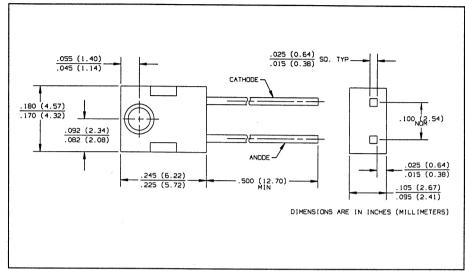
Product Bulletin OP245A June 1996



## GaAlAs Plastic Infrared Emitting Diodes Types OP245A, OP245B, OP245C, OP245D





#### **Features**

- Mechanically and spectrally matched to the OP555 and OP565 series devices
- Wavelength matched to silicon's peak response
- Significantly higher power output than GaAs at equivalent drive currents
- Side-looking package for space limited applications

### Description

The OP245 series devices are 890 nm high intensity gallium aluminum arsenide infrared emitting diodes molded in IR transmissive amber tinted epoxy packages. The side-looking packages are for use in PC board mounted slotted switches or as easily mounted interrupt detectors.

### Replaces

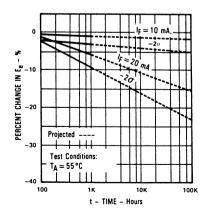
K6650

### Absolute Maximum Ratings (T<sub>A</sub> = 25° C unless otherwise noted)

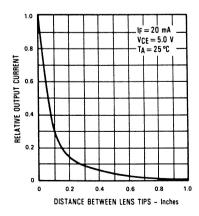
Reverse Voltage
Continuous Forward Current
Peak Forward Current (1 μs pulse width, 300 pps) 3.0 A
Storage and Operating Temperature Range40° C to +100° C
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering
iron]
Power Dissipation 100 mW <sup>(2)</sup>
Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering. A max. of 20 grams force may be applied to the leads when soldering.
- (2) Derate linearly 1.33 mW/° C above 25° C.
- (3) E<sub>e(APT)</sub> is a measurement of the average apertured radiant incidence upon a sensing area 0.180" (4.57 mm) in diameter, perpendicular to and centered on the mechanical axis of the lens, and 0.653" (16.6 mm) from the lens tip. E<sub>e(APT)</sub> is not necessarily uniform within the measured area.

# Typical Performance Curves Percent Changes in Radiant Intensity vs Time



## Coupling Characteristics of OP245 and OP555



## INFRARED EMITTING DIODES

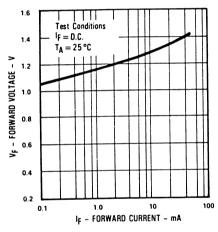
## Types OP245A, OP245B, OP245C, OP245D

**Electrical Characteristics** (T<sub>A</sub> = 25° C unless otherwise noted)

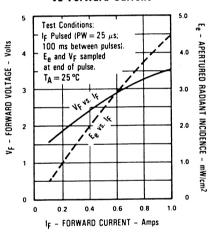
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
E <sub>e(APT)</sub>	Apertured Radiant Incidence OP245D OP245C OP245B OP245A	0.20 0.40		0.86 1.20	mW/cm <sup>2</sup> mW/cm <sup>2</sup>	I <sub>F</sub> = 20 mA <sup>(3)</sup> I <sub>F</sub> = 20 mA <sup>(3)</sup> I <sub>F</sub> = 20 mA <sup>(3)</sup> I <sub>F</sub> = 20 mA <sup>(3)</sup>
VF	Forward Voltage			1.80	V	I <sub>F</sub> = 20 mA
I <sub>R</sub>	Reverse Current			100	μΑ	V <sub>R</sub> = 2 V
λр	Wavelength at Peak Emission		890		nm	I <sub>F</sub> = 10 mA
В	Spectral Bandwidth Between Half Power Points		80		nm	I <sub>F</sub> = 10 mA
Δλρ/ΔΤ	Spectral Shift with Temperature		+0.18		nm/º C	I <sub>F</sub> = Constant
θнр	Emission Angle at Half Power Points	1	40		Deg.	I <sub>F</sub> = 20 mA
tr	Output Rise Time		500		ns	$I_{F(PK)} = 100 \text{ mA},$
tf	Output Fall Time	1	250		ns	PW = 10 μs, D.C. = 10%



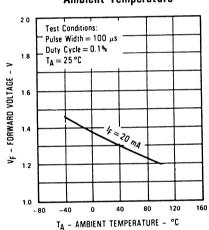




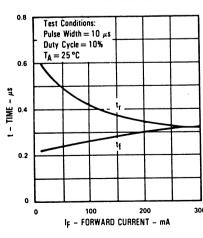
## Forward Voltage and Radiant Incidence vs Forward Current



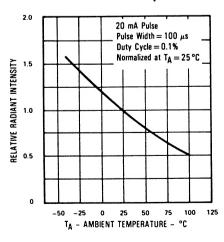
Forward Voltage vs Ambient Temperature



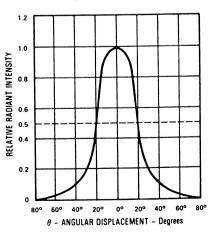
Rise Time and Fall Time vs Forward Current



Relative Radiant Intensity vs Ambient Temperature



Relative Radiant Intensity vs Angular Displacement



Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.